

## CLAIMS

What is claimed is:

1. A method of forming a reversible peptide-receptor complex comprising;  
providing an immobilized receptor; and  
contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2;  
and whereby the receptor binds the peptide.
2. The method of claim 1, wherein the receptor is a GHS-R.
3. The method of claim 2, wherein the GHS-R is expressed in tissue selected from the group consisting of:
  - a) stomach;
  - b) lung;
  - c) pituitary;
  - d) hypothalamus;
  - e) hippocampus;
  - f) kidney;
  - g) duodenum;
  - h) jejunum;
  - i) small intestine;
  - j) skeletal muscle; and
  - k) pancreas.
4. The method of claim 3, wherein the receptor comprises residues 41 to 326 of SEQ ID NO:5.
5. The method of claim 4, wherein the receptor comprises residues 1 to 366 of SEQ ID NO:5.
6. The method of claim 1, whereby the receptor is immobilized on a cell membrane.
7. A method of purifying cells comprising;

immobilizing a peptide comprising residues 24 to 37 of SEQ ID NO:2; and  
 contacting the peptide with cells expressing a receptor, whereby the peptide  
 binds the receptor and forms a peptide-receptor complex;  
 and whereby the cells are purified.

8. The method of purifying cells according to claim 7, wherein the  
 receptor is a GHS-R.

9. The method of purifying cells according the claim 8, wherein the  
 receptor comprises residues 41 to 326 of SEQ ID NO:5.

10. A method of purifying a peptide comprising;  
 immobilizing cells expressing a receptor, wherein the receptor comprises  
 residues 41 to 326 of SEQ ID NO:5;  
 contacting the immobilized cells with solutions containing a peptide, wherein  
 the peptide comprises residues 24 to 37 of SEQ ID NO:2; and  
 forming the peptide-receptor complex;  
 and whereby the peptide is purified.

11. A method of stimulating signal transduction in a cell expressing a  
 receptor comprising;  
 providing cells expressing a receptor capable of binding a peptide;  
 contacting the receptor with a peptide, wherein the peptide comprises residues  
 24 to 37 of SEQ ID NO:2; and  
 forming the peptide-receptor complex according to claim 1;  
 and wherein the formation of the peptide-receptor complex stimulates signal  
 transduction in the cell.

12. A method of modulating secretion of hormones in cells *in vitro* or *in*  
*vivo* comprising;  
 providing cells expressing a receptor capable of binding a peptide;  
 contacting the receptor with a peptide, wherein the peptide comprises residues  
 24 to 37 of SEQ ID NO:2; and  
 forming the peptide-receptor complex according to claim 1;  
 and wherein the formation of the peptide-receptor complex modulates the  
 secretion of hormones in the cells.

13. A method of modulating neural development and/or utilization in a mammal comprising:

providing cells expressing a receptor capable of binding a peptide;  
contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and  
forming the peptide-receptor complex according to claim 1;  
and wherein the formation of the peptide-receptor complex modulates neural development and/or utilization in the mammal.

14. A method of modulating contractility in gastrointestinal cells comprising:

providing gastrointestinal cells expressing a receptor capable of binding a peptide;  
contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and  
forming the peptide-receptor complex according to claim 1;  
and wherein the formation of the peptide-receptor complex modulates contractility in the gastrointestinal cells.

15. A method of modulating nutrient uptake in gastrointestinal cells comprising:

providing gastrointestinal cells expressing a receptor capable of binding a peptide;  
contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and  
forming the peptide-receptor complex according to claim 1;  
and wherein the formation of the peptide-receptor complex modulates nutrient uptake in the gastrointestinal cells.

16. A method of modulating growth hormone secretion in pituitary cells comprising:-

providing pituitary cells expressing a receptor capable of binding a peptide;  
contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and  
forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor complex modulates growth hormone secretion in the pituitary cells.

17. A method of modulating secretion of digestive enzymes in gastrointestinal cells comprising:

providing gastrointestinal cells expressing a receptor capable of binding a peptide;

contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and

forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor complex modulates secretion of digestive enzymes in the gastrointestinal cells.

18. A method of modulating the secretion of digestive hormones in gastrointestinal cells comprising:

providing gastrointestinal cells expressing a receptor capable of binding a peptide;

contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and

forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor complex modulates secretion of digestive hormones in the gastrointestinal cells.

19. A method of modulating secretion of enzymes in pancreas cells comprising:

providing pancreas cells expressing a receptor capable of binding a peptide;

contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and

forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor complex modulates secretion of enzymes in the pancreas cells.

20. A method of modulating the secretion of hormones in pancreas cells comprising:

providing pancreas cells expressing a receptor capable of binding a peptide;

contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and

forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor complex modulates secretion of hormones in the pancreas cells.

21. A method of modulating gastric reflux in gastrointestinal tissue comprising:

providing gastrointestinal tissue expressing a receptor capable of binding a peptide;

contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and

forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor complex modulates gastric reflux in the gastrointestinal tissue.

22. A method of modulating the secretion of insulin-like growth factor-I in cells comprising:

providing cells expressing a receptor capable of binding a peptide;

contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and

forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor complex modulates secretion of insulin-like growth factor-I in the cells.

23. A method of modulating secretion of non-zsig33 proteins in cells comprising:

providing cells expressing a receptor capable of binding a peptide;

contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and

forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor complex modulates secretion of non-zsig33 proteins in cells.

24. A method of modulating growth hormone secretion in a mammal having a disease associated with abnormal levels of growth hormone wherein the disease is selected from the group consisting of:

- a) osteoporosis;
- b) bone repair;
- c) bone remodeling;
- d) low osteoblast levels;
- e) cartilage repair;
- f) cartilage remodeling;
- g) skeletal dysplasia;
- h) immune suppression;
- i) obesity;
- j) growth retardation;
- k) protein catabolic responses after surgery;
- l) cachexia;
- m) protein loss;
- n) dwarfism;
- o) wound healing; and
- p) ovulation induction

and wherein the method comprises,

providing cells from the mammal that express a receptor capable of binding a peptide;

contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and

forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor complex modulates growth hormone secretion in the mammal.

25. A method of treating a mammal having a metabolic disorder requiring neurological feedback, wherein the metabolic disorder is selected from the group consisting of:

- a) satiety regulation;
  - b) glucose absorption;
  - c) glucose metabolism; and
  - d) neuropathy-associated gastrointestinal disorders
- and wherein the method comprises,

providing cells from the mammal that express a receptor capable of binding a peptide;

contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and

forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor complex treats the mammal having the metabolic disorder requiring neurological feedback.

26. A method of stimulating glucose-induced insulin release in a mammal comprising,

providing cells from the mammal that express a receptor capable of binding a peptide;

contacting the receptor with a peptide, wherein the peptide comprises residues 24 to 37 of SEQ ID NO:2; and

forming the peptide-receptor complex according to claim 1;

and wherein the formation of the peptide-receptor stimulates glucose-induced insulin release in the mammal.